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V. H. KELLEY

VENDING MACHINE

Filed Aug. 17, 1925

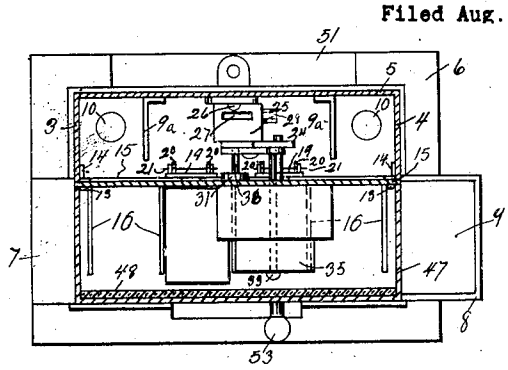


Fig. 1.

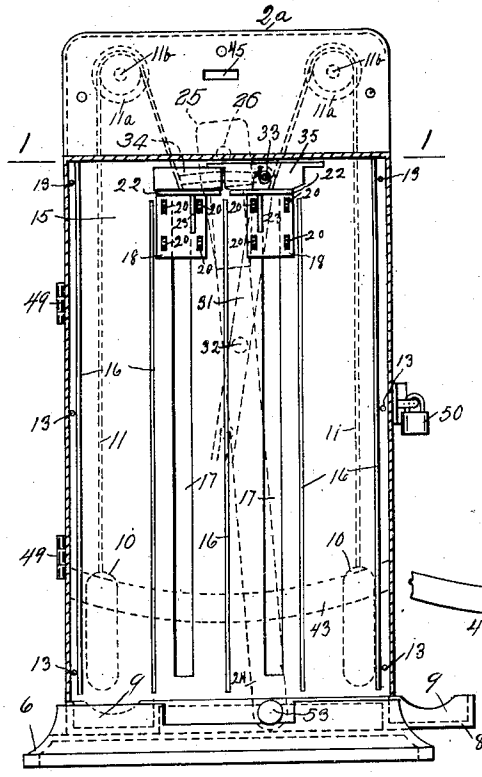


Fig. 2.

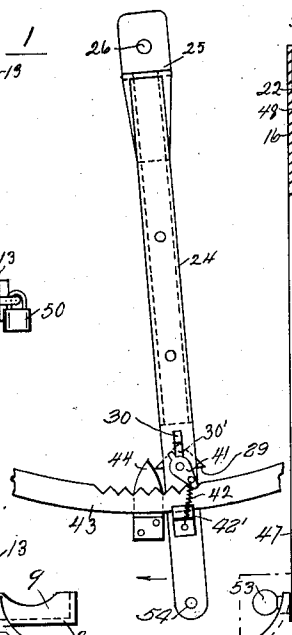


Fig. 4.

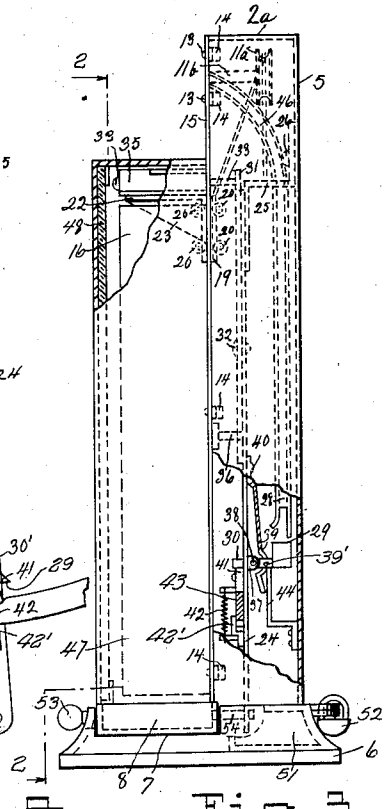


Fig. 3.

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UNITED STATES PATENT OFFICE.

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VENDING MACHINE.

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This invention relates to coin-controlled vending machines, and has reference more particularly to a new and improved coin-controlled locking and releasing mechanism more especially applicable for use on machines of the type wherein the goods to be vended are of uniform shape and size, such as the well-known penny match boxes, and are stored in vertical bins in a cabinet and are delivered by a slide underlying the lower ends of the bins and transferring the articles from the latter to accessible points beyond the side walls of the cabinet.

The object of the invention is to provide a simple, inexpensive and reliable coin-controlled locking and releasing mechanism for the slide or analogous delivery device of the cabinet.

My invention, in one practical embodiment thereof, is illustrated in the accompanying drawing, in which—

Fig. 1 is a sectional plan view taken on the line 1—1 of Fig. 2;

Fig. 2 is a front elevation of interior parts, in section through the front portion of the cabinet on the line 2—2 of Fig. 3;

Fig. 3 is a right side elevation, with a portion of the door and cabinet broken out and in vertical section;

Fig. 4 is a front elevation of the swinging beam and associated parts of the locking and releasing mechanism.

My present invention has to do with the locking and releasing mechanism of the delivery slide, which is controlled by the deposit of a coin; and in order that the structural features and mode of operation of said mechanism may be fully understood, I will first briefly describe the structure of the cabinet itself and the delivery mechanism as shown in the drawing, it being understood, however, that the invention is not limited to the particular cabinet and delivery mechanism so shown.

The cabinet is a generally rectangular upright structure comprising a top wall 2^a, and side walls 3 and 4 which may be bent to rectangular shape from a continuous strip of sheet-metal, and a back wall or plate 5 welded thereto; the whole being mounted on a cast metal base 6. The top portion of the cabinet may be of reduced width from front to rear, as clearly shown in Fig. 3. In the base 6 is formed a horizontal channel 7 which extends the full width of the base and opens through the opposite sides of the latter. This channel is occupied by a reciprocable delivery slide, which is formed with a top wall throughout its intermediate portion and a pair of pockets 9 at its ends. This slide is of a length such that when either pocket is just within one side wall of the cabinet the other pocket occupies a position just beyond the opposite side wall, thereby delivering articles alternately on opposite sides as the slide is pushed to and fro.

The interior space of the cabinet is divided approximately midway of its front and rear by a vertical partition plate 15, the same being secured by screws 13 to angle brackets 14 attached to the side walls 3 and 4. A series of spaced vertical plates 16 are welded or otherwise secured to the front side of the plate 15 and form four vertical bins or containers for the articles to be vended. In the construction shown the articles are stored in the two intermediate bins, and are gradually elevated and delivered one by one alternately to the two outer bins by the mechanism next to be described. Vertical partitions 9^a secured to the back plate 5 of the cabinet form with the latter and the side walls 3 and 4 wells in which weights 10 are suspended on cables 11 which pass over pulleys 11^a journalled on studs 11^b secured in the plate 15, and the other ends of said cables are attached to elevators operating in the two central bins. In that portion of the plate 15 which forms the back walls of the intermediate bins are formed vertical slots 17 that constitute guideways for the elevators. Each of these elevators comprises a front plate 18, a back plate 19 to which the cables 11 are attached, and a web between the two plates slidably disposed in the slot 17. To reduce friction, small wheels 20 journaled on rods 21 carried by the plates 18 and 19 are disposed in rolling contact with the plate 15 through slots in the plates 18 and 19. On the top of the plates 18 horizontal shelves 22 supported by brackets 23 are secured, and upon said shelves the articles in the central bins are stacked, the elevators at that time being at the bottom of the bins.

A beam 24 disposed in rear of the plate 15 has secured to its upper end a rearwardly offset angle arm 25 which is pivotally attached to the back wall 5 of the cabinet by a pivot stud 26, and through the horizontal limb of the angle arm 25 a slot 27 is formed, this slot being enough longer than the diameter of the coin to pass the latter in both ex-

treme positions to which the beam is swung, as hereinafter more particularly described. In the lower end of the beam 24 is a pin 54 that extends into a vertical slot in the rear wall of the slide 8, so that when the slide is manually pushed from side to side of the machine for delivering goods from either pocket thereof, the beam 24 is swung to and fro on its pivot 26.

The means for alternately delivering the uppermost packages from the central bins into the side bins consists of the following. A lever 31 is pivotally mounted on the front side of the beam 24 by a pivot pin 32. Said lever is equipped with a forwardly projecting pin 33 at its upper end which projects through an arcuate slot 34 in the plate 15, and upon said pin in front of the plate is mounted an ejector block 35, the upper side of which is in loose sliding contact with the top wall of the front portion of the cabinet. The lower end of the lever 31 is forked and straddles a post 36 secured in the back of the plate 15 at approximately the center of the latter. The swinging of the beam 24 in either direction thus causes a sliding movement of the ejector block 35 in the same direction, and said block operates to push the topmost package in one of the intermediate bins over into the adjacent side bin, through which it falls into the slide receptacle 9 at that time underlying said side bin.

A door 47 equipped with a glass front 48 is connected by hinges 49 to one side of the cabinet and locked to the cabinet on the other side by a padlock 50. A knob 53 projecting from the slide 8 through a wide notch in the front wall of the slideway 7 provides a convenient means for manually operating the slide after the latter has been released by the coin-controlled locking and releasing mechanism next to be described and constituting the subject-matter of the present invention.

In the upper portion of the plate 15, which projects above the lower storage bin portion of the cabinet is a coin slot 45 registering with the upper end of a curved coin chute section 46, the lower end of the latter registering with the slot 27. In turn registering with the lower side of the slot 27 is the upper end of a coin chute 28 that is attached to the horizontal member of the angle arm 25 and extends downwardly parallel with the beam 24. 30 designates a short lever that is pivotally mounted by a pin 38 between ears 37 on the rear side of the beam 24. The forward arm of said lever projects through a vertical slot 30′ in the beam 24, while its rear arm is formed with a wedge-shaped head 29 that underlies the open lower end of the coin chute 28. The lever is normally upheld in the horizontal position shown in Fig. 3 by the lower offset end of a leaf spring 39 secured to the back of the beam 24, the offset lower portion of said spring supportingly engaging a lateral pin 39′ on the arm 30. On the front side of the beam 24 a pawl 41 is pivotally mounted slightly below the slot 30′, and a pull spring 42 attached to the lower end of the pawl and anchored to a guide bracket 42′ on the beam 24 urges the nose of the pawl into working relation with the teeth of a toothed bar 43 that is curved concentrically with the pivotal connection of the beam 24 and secured at both ends to the sides of the cabinet; the guide 42′ overlapping the lower edge of the bar 43 serving to maintain the beam 24 in sliding engagement with the bar 43. A finger 44 formed with a pointed upper end is attached to the back of the cabinet and extends upwardly and serves as a cam to raise the lever 30 to horizontal position as it passes over the same. When said lever is in horizontal position the forwardly projecting arm thereof lies in locking engagement with the heel of the pawl 41, so that the beam 24 cannot be moved in the direction in which the pawl points until the lever 30 has been swung out of engagement with the heel of the pawl by the weight of a coin striking the head 29 of the lever, whereupon the slide 8 can be manipulated to deliver a package. During such delivery the beam 24 swings to its opposite position, and the pawl rocks on its pivot to reverse position and is then dragged idly over the teeth of the bar 43. During such swinging movement of the beam 24, the lever 30 is raised to pawl-locking position and is caught and held in said position by the spring 39, until released by the deposit of another coin.

It may here be explained that there is sufficient play between the nose of the pawl and the teeth of the bar 43 to enable the pawl to rock on its pivot, as described, when permitted to do so by the disengagement of the lever 30 from the heel of the pawl.

I claim:—

1. In a cabinet vending machine having a storage bin and a horizontal delivery slide underlying the storage bin, the combination of a beam pivotally suspended at its upper end and at its lower end articulated to and adapted to be swung by said slide, a coin chute, a fixed toothed bar disposed crosswise of said beam, a locking pawl pivoted on said beam co-operating with the teeth of said bar, and means, adapted to be released by a coin dropping from said chute, for locking said pawl in a position wherein it co-operates with said toothed bar to prevent swinging movement of said beam.

2. In a cabinet vending machine having a storage bin and a horizontal delivery slide underlying the storage bin, the combination of a beam pivotally suspended at its upper end and at its lower end articulated to and adapted to be swung by said slide, a coin

chute mounted on said beam, a fixed bar having on one edge thereof an arcuate row of teeth concentric with the pivot of said beam, a locking pawl pivoted on said beam to swing in the vertical plane of said bar and co-operating with the teeth of the latter, and means, adapted to be released by a coin dropping from said chute, for locking said pawl against swinging on its pivot and in a position wherein it co-operates with said bar to prevent swinging movement of said beam.

3. In a cabinet vending machine having a storage bin and a horizontal delivery slide underlying the storage bin, the combination of a beam pivotally suspended at its upper end and at its lower end articulated to and adapted to be swung by said slide, a coin chute mounted on said beam, a fixed bar having on its upper edge an arcuate row of teeth concentric with the pivot of said beam, a locking pawl pivoted on said beam to swing in the vertical plane of said bar, a spring urging said pawl into engagement with the teeth of said bar, and a pawl locking and releasing lever pivoted on said beam with one end thereof underlying said coin chute, said lever adapted to be swung to release position by a coin dropping thereon from said coin chute.

4. In a cabinet vending machine having a storage bin and a horizontal delivery slide underlying the storage bin, the combination of a beam pivotally suspended at its upper end and at its lower end articulated to and adapted to be swung by said slide, a coin chute mounted on said beam, a fixed bar having on its upper edge an arcuate row of teeth concentric with the pivot of said beam, a locking pawl pivoted on said beam to swing in the vertical plane of said bar, a spring urging said pawl into engagement with the teeth of said bar, a pawl locking and releasing lever pivoted on said beam with one end thereof underlying said coin chute, said lever adapted to be swung to release position by a coin dropping thereon from said coin chute, and means for restoring said lever to pawl locking position during the swinging movement of said beam.

5. A specific form of claim 4, wherein the means for restoring the pawl locking and releasing lever to locking position comprises a fixed cam over which said lever rides during the swinging movement of the beam, and a spring catch for yieldably holding said lever in pawl locking position.

In testimony whereof I affix my signature.

VICTOR H. KELLEY.